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Evaluation Report

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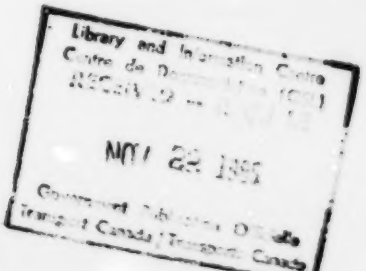
Paving in Cold Areas Workshop

October 15-19, 1984

Tsukuba Science City, Japan

Evaluation Report

CANADA/JAPAN SCIENCE AND TECHNOLOGY CONSULTATIONS



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17. Abstract

The second joint Canada/Japan Paving in Cold Areas Mini-Workshop (PICA II) held in Tsukuba Science City in Japan between October 15-29, ¢984 to discuss the particular problems of paving in cold areas brought together Canadian and Japanese experts in pavement research. The workshop consisted of ten technical sessions, at which thirty-four papers were presented. Discussions centered on two primary areas, pavement management and pavements and cracking. This document provides an evaluation of the workshop from the standpoint of its value to the Canadian participants.

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17. Résumé

Le deuxième atelier nippo-canadien Les revêtements routiers dans la région climat froid s'est tenu à Tsukuba, Japon du 15 au 19 octobre 1984. Il a regroupé des experts des deux pays dans le domaine de la recherche sur les revêtements et leur a permis de discuter des problèmes particuliers des revêtements dans les climats froids. Cet atelier comprenait dix séances, au cours desquelles trente-quatre exposés ont été présentés. Les deux principaux sujets abordés étaient: les systèmes de gestion routier et la fissuration des revêtements. Ce rapport constitue une évaluation de l'atelier du point de vue de sa valeur pour les participants canadiens.

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Revêtements, soulèvement dû au gel, fissuration à basse température, produits d'addition pour bitumes, matériaux de revêtement	Le CDT dispose d'un nombre limité d'exemplaires.

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EVALUATION REPORT
PAVING IN COLD AREAS WORKSHOP

TSUKUBA SCIENCE CITY JAPAN
OCTOBER 15-19, 1984

Background

Canada and Japan convened the first science and technology consultations in 1974 after it was felt by a number of people in both countries that there were real potential benefits to cooperation in specific and technology areas.

The consultations took place every two years and covered a variety of areas of interest. At the fourth set of such consultations held in Tokyo in 1980, it was agreed that one topic where information exchange and collaborative activity would be of mutual benefit was paving in cold areas (PICA). As a first step in this activity, national contacts were established in each of the countries and reciprocal visits were made during 1980 and 1981. In October of 1982 a mini workshop was held in Vancouver under the aegis of the Canada/Japan Science and Technology Consultations. The PICA workshop had three main thrusts. The first and dominant one involved an in-dept exchange of technical information. Flowing from this, the second aim was identifying needs and opportunities for further research. Finally, the third major aim was towards defining specific directions for further cooperative efforts between Canada and Japan on the problem of paving in cold areas in the future.

The workshop participants agreed that a high priority should be assigned to problems in two major areas:

* reflection cracking, causes, treatment and cure

* Pavement management criteria, the measurement of quality of service and appropriate criteria for use in decision making in pavement management

Following the PICA 1 workshop and the designation of more specific interest areas, discussion between Canada and Japan resulted in PICA 2 to be held in Tsukuba Science City, Japan. In this workshop, particular attention was given to concentrating discussion in the two major theme areas in hopes that an effective and productive exchange of information would take place. It was also hoped that this time, specific cooperative activities and projects might be identified for the future.

The Roads and Transportation Association of Canada (RTAC) was engaged to assist in the planning and organization of Canadian participation in the second workshop. Two reports were produced as a result of this involvement. This report is a short evaluation of the events and dicussions surrounding the PICA 2 workshop, and contains some recommendations for the future. The second report, published separately, summarizes the specifics of the technical program of PICA 2.

CANADIAN DELEGATE PARTICIPATION

In all, thirteen Canadian engineers took part in the PICA 2 workshop. The list of participants is shown in the table below.

LIST OF CANADIAN DELEGATES TO PICA 2

NAME	AGENCY
* Dr. K.O. Anderson	University of Alberta
* Mr. George Chong	Ontario Ministry of Transportation and Communications
* Dr. J.J. Emery	Trow Ltd.
* Mr. Garry Heiman	Saskatchewan Highways
* Dr. R.C.G. Haas	P.M.S. Ltd.
* Mr. J.W.G. Kerr	B.C. Transportation and Highways
* Mr. J. Hvozdanski	B.C. Transportation and Highways
* Dr. J. Hode-Keyser	CRCAC Inc.
* Mr. Richard Langlois	Quebec Ministry of Transport
* Mr. W.A. Phang	Ontario Ministry of Transportation and Communications
* Mr. G. Kennepohl	Gulf Canada Ltd.
* Mr. M. Brenckmann	Transport Canada
* Dr. John B.L. Robinson	Roads and Transportation Association of Canada

The representation was fairly well distributed from across the country and between government, academic and private sectors. One delegate was from Quebec City, two were from Montreal, one hailed from Ottawa and four were from Toronto. In addition, one came from Waterloo, one was from Regina, another from Edmonton and two were out of Victoria. Five delegates represented the private sector, seven were governmental employees and one was from the academic field.

On the Japanese side the representation varied somewhat through the three days of technical sessions. On average, there were forty to fifty Japanese delegates present at any one time, with a core group of active participants of 34 individuals who were the authors of the Japanese papers being presented. A complete listing of the Japanese delegation is contained in Appendix A to this report.

TECHNICAL PROGRAM AND DISCUSSIONS

The technical program consisted of three days of technical workshops at the Public Works Research Institute of Tsukuba Science City near Tokyo. These workshops were followed by a two-day field trip.

Ten technical sessions in all were held. Thirty-four papers were presented, of which thirteen came from Canadians present. In all some 100 copies of these proceedings were provided to RTAC which has since undertaken and completed the distribution of these free to anadian researchers in the area of pavements and soils and materials.

The technical discussion centered on the subjects outlined in the table below.

TOPICS COVERED IN PICA 2

PAVEMENT MANAGEMENT
* measurement of quality of service
* automated data collection and analysis
* criteria for quality of service
* timing and methods of preventive maintenance
* budget planning

PAVEMENTS AND CRACKING
* effectiveness of asphalt additives
* new techniques and materials
* mix and pavement structure design
* theoretical analysis of reflection cracking
* measurement of crack movement
* maintenance: timing, methods, equipment and materials

CANADIAN PROPOSAL

A primary goal of the Canadian effort in PICA 2 was to get the Japanese to commit themselves to a level of cooperative effort in this field which would go beyond the simple exchange of technical information through the medium of workshops and papers. As is discussed later, a measure of success has been obtained in working towards this goal.

In an effort to ensure that this goal would be achieved, considerable pre-planning was undertaken culminating in conjunction with the RTAC Annual Conference. This meeting, taking place some three weeks before the departure for Japan, served as a venue for the Canadian participants to be briefed completely on the goals of PICA 2 and also as an opportunity to outline a proposal to be put before the Japanese.

To further negotiate with the Japanese on-site, a small sub-committee was struck consisting of Messrs. Phang, Brenckmann, and Eggleton and Drs. Emery and Robinson. This group met with Japanese representatives both before and during the workshop in order to finalize a concrete proposal for future activities in Paving in Cold Areas.

The Canadian proposal recognized a reluctance on the part of the Japanese to commit to some concrete action than straight information exchange. On the other hand it required of the Japanese some real movement towards joint activity if PICA were to continue in the future. The proposal consisted of two major elements:

* continued information exchange through technical workshops.
* creation of a joint Canada/Japan working group of experts to work on a specific project to be jointly determined by both countries and reported on at the next PICA workshop.

The proposal set out a schedule for the various activities involved in working toward PICA 3 as shown below.

PROPOSED PICA 3 PROCESS

ACTIVITY	COMPLETION DATE
* creation of joint committee to negotiate details of joint activity and PICA 3 format	Oct. '84 (complete)
* agree on general theme for PICA 3	Oct. '84 (complete)
* each country to develop proposals for joint project and circulate to other country for consideration	April '85 (underway)
* select and finalize candidate proposals by joint meeting or correspondence	June 30 1985
* finalize country approval and working committee membership	Sept. 30 1985
* start project work	Oct. 1 1985
* PICA 3 meeting	winter 87/88

As can be observed from the above table, portions of this work are now underway. The Japanese have agreed to this proposal and appear to be working toward implementing it at this time.

ACCOMPLISHMENTS OF PICA 2

There is little doubt that PICA 2 was more successful in Canadian eyes that was the first workshop held in October of 1983 in Vancouver. This is not to fault the first workshop, but it was recognized that the first effort in this series would largely serve as a general technical exchange, and the broad coverge of topics at that time precluded real progress in specific areas.

The second workshop had a specific focus around which the program was developed. In addition, some members of the Canadian delegation had been in contact with their Japanese counterparts between the first and second meetings to work on joint papers and presentations. This considerably aided the real transfer of information in both directions between the participants.

Solid contacts have now been established between the Canadian researchers and Japanese working in the same fields. These personal links, which were initially forged during PICA 1 were reinforced strongly during the five days of PICA 2. As a result, information exchanges continue at a personal level between engineers in the two countries, to our mutual benefit. The importance of and benefits which flow from such links cannot be understated.

As noted previously, the Japanese have agreed to the Canadian proposal, whcih though modest in its aims, represented a quantum leap in their committment to cooperative activities under the PICA banner. As a result discussions are currently underway to work toward a third workshop which will be held in Canada sometime in the late fall of 1987 or the winter of 1988. The exact venue and dates of PICA 3 have yet to be established.

There is little doubt that the Japanese side was considerably impressed with the expertise and polsih of Canadian researchers and technology in the paving in cold areas field. All of the Canadian presentation at the workshop were of a uniformly high standard and it was evident that each of our participants had prepared well for the meetings.

Subsequent to the workshop, Canadian delegates were asked to provide information on the areas where there seemed to be the most promise and benefot to the Canadian side in continuing discussions in the future, The list of topics on which there appeared to be concensus appears below.

AREA FOR FUTURE PICA DISCUSSIONS

(In no particular order)

* automated data collection techniques and equipment

* cracking behaviour - thermal cracking, reflection cracking, analytical studies, repair and maintenance

* maintenace materials and methods

* improved asphalts - rubberized, semi-blown, polymeric additions

* mathematical modelling of pavement performance and materials

* construction techniques and quality control

* distress characterization and measurement

* winter maintenance - studded tires, deicing, sanding etc.

There was a general concensus that the Japanese contributions to PICA 2 were considerably improved over those that were given at PICA 1. Among other areas, they have some advantage over us in areas such as analytical studies of cracking behaviour, the mathematical modelling of pavement performance and materials and at least somewhat in the area of improved asphalts. In mose other sectors, Canadian technology and knowledge to be ahead.

All of the delegates to the workshop felt that the activity was well worth continuing in the future and offered real promise of benefitting Canadian engineers working in this are of endeavour.

CONCLUSIONS

As a result of the PICA 2 workshop, a tentative agreement has been reached with the Japanese to continue to collaborate in this area and work toward a third workshop to be held in Canada. The themes of the third workshop will be:

* Pavement maintenance
  - pavement management system applications
  - repair and maintenance technology

* Pavement materials
  - evaluation methods
  - durability considerations
  - new materials

* Theoretical analysis on paving materials

The PICA 3 activity will include two elements, a general information exchange portion and a joint collaborative project which is now being discussed with the Japanese. Exact mechanisms for this activity have yet to be finalized and approved by the respective parties involved.

If discussion are successful, the third workshop will be held in Canada in the late fall of 1987 or the winter of 1988.

It is essential that full industrial or private sector participation be sought from the Japanese in the future. It was only with considerable effort that an element of such participation was obtained from the Japanese in PICA 2. The private has much to offer to these discussions particularly when such subjects as technology development are under discussion. Automated data collection systems would fall into this category.

In summary, the PICA 2 workshop can be honestly said to have been a success. The goals set out for it were fully achieved, including the heightening of the Japanese committment to further collaborative efforts of a conrete nature. There are elements of the Japanese research program which are of real interest and potential benefit to Canadian researchers. It is recommended that the program be pursued in the future.

POST SCRIPT

Since the initial preparation of this report agreement has been reached with the Japanese on a specific project to be undertaken jointly by Canadian and Japanese researchers. The research will center on an exploration of the different properties of asphalt cements used in Canada versus those used in Japan and how these might affect pavement performance. In Canada, the project is led by the Ontario Ministry of Transportation and Communications, and participation is also being sought from the provinces of Saskatchewan and Quebec. The Japanese effort will be coordinated through their Public Works Research Institute of the Ministry of Construction.

APPENDIX A

LIST OF JAPANESE PARTICIPANTS

PWRI

Ryuichi Iida *	Director General, Dr.
Masateru Tominaga *	Deputy Director General, Dr.
Yorio Muralami	Assistant Director General
Tatsu Ohki *	Geotechnical Counsellor
Yukio Moriguchi *	Director of General Affairs Department
Nobuyuki Narita *	Director of Planning and Research Administration Department
Minoru Makita	Director of Geology and Chemistry Department
Keiichi Fukui *	Director of Water Quality Control Department
Masayuki Jojima *	Director of Dam Department
Daiji Fujita	Director of Road Department
Shohei Chida *	Director of Construction Method and Equipment Department
Toshio Iwasaki *	Director of Earthquake Disaster Prevention Department
Harua Minemura *	Head of Planning Division
Masao Shibata *	Head of traffic Engineering Division
Hiroo Kanzaki *	Head of New Transportation Systems Division
Yoshio Adachi *	Head of Traffic Environment Division
Takashi Iijima	Head of Pavement Division
Toshinori Mizutani *	Head of Tunnel Division
Tadayoshi Inoue *	Head of Planting Division
Makoto Okamura	Senior Research of Pavement Division
Takuya Ikeda	Researcher of Pavement Division
Masahide Itoh	Researcher of Pavement Division
Horoyuki Sakamoto	Researcher of Chemistry Division

Note *: Opening Ceremonies Only

AUTHORS OF PAPERS

Hiroyuki Tada	Dr., Tokyo-man Odan-Doro Kenkyukai, Kogin-Yammer Godo Bldg., Marunouchi 1-11-1, Chiyodaku, Tokyo-to, 100
Masao Inuzuka	Dr., Professor, Department of Civil Engineering
Sachiko Inuzuka	Hokkaido Institute of Technology Teine Maeda 419-2, Nishi-ku, Sapporo-shi, 061-24
Yorimasa Abe	Dr., Assistant Professor, Department of Civil Engineering, Nihon University Kanda Surugadai 1-8, Chiyoda-ku, Tokyo-to, 101
Fumiichi Tatsushita	Director of Technical Department, The Institute of Civil Engineering, Tokyo Metopolitan Gavernment Konan 1-1-18, Minato-ku, Tokyo-to, 108
Kitaro Uchida	Technical Department, ditto
Atsushi Kasahara	Dr., Professor, Department of Civil Engineering, Hokkaido Institute of Technology Same address as Dr. Inuzuka's
Takashi Horisguchi	Department of Civil Engineering, ditto
Tadashi Fukuda	Dr., Professor, Department of Civil Engineering, Tohoku University Aoba, Aramaki, Sendai-shi, Miyagi-ken, 980
Sadanori Murai	Department of Civil Engineering, ditto
Hikoto Takahashi	Department of Civil Engineering, Tohoku Institute of Technology Kasumi-cho 35-1, Yagiyama, Sendai-shi, Miyagi-ken, 982
Hiroshi Kubo	Dr., Director of the 3rd Research Department, The Civil Engineering Research institute, The Hokkaido Development Bureau Hiragishi 1-3, Toyohira-ku, Sapporo-shi, 062
Shigeki Kumagai	Head, Paement Laboratory, ditto
Manabu Oguri	Pavment Laboratory, ditto
Katsuhisa Satoh	Dr., Head, Runway Laboratory, The Port and Harbour Research Institute, The Ministry of Transport Nagase 3-1-1, Yokosuka-shi, Kanagawa-ken, 239
Yoshitaka Hachiya	Runway Laboratory, ditto
Yosuke Hayashi	ditto
Teruo Sugawara	Dr., Professor, Department of Civil Engineering, Hokkaido University Kita 13, Nishi 8, Kita-ku, Sapporp-shi, 060
Takaaki Nambu	Head, Road Planning Division, Hokuriku Construction Bureau, The Ministry of Construction Hakusan-ura 1-425-2, Niigata-shi, Niigata-ken, 951

Kaneharu Isobe	Director General, Tohoku Technical Office Sakuragi 3-6-1, Tagajo-shi, Miyagi-ken, 985
Chikahiro Kamiya	Head, The 2nd Road Planning Division, Tohoku Construction Bureau, The Ministry of Construction Futsuka-machi 9-15, Sendai-shi, Miyagi-ken, 980
Saburo Matsuno	Dr., Director General, The Laboratory of Satoh Doro Co., Ltd Santa 47-3, Atsugi-shi, Kanagawa-ken 243-02
Tatsuo Nishizawa	Department of Civil Engineering, Kanazawa University Kotateno 2-40-20, Kanazawa-shi, Ishikawa-ken, 920
Takashi Watanabe	Dr., Professor, Department of Civil Engineering, Tokyo Institute of Technology Ookayama 2-12-1, Meguro-ku, Tokyo-to, 152
Kenji Himeno	Department of Civil Engineering, ditto
Shigeko Hayashi	Doboku Kenkyu Center, Same address as PWRI
Tadashi Mise	Dr., Professor, Department of Civil Engineering, Osaka City University Sugimoto 3-3-138, Sumiyoshi-ku, Osaka-shi, Osaka-fu, 558
Masaru Yamada	Dr., ditto
Ippei Kojima	Director of the 1st Research Department, The Laboratory of Kumagai Doro Co., Ltd. Kokinu 216-1, Yawahara-mura, Tuskuba-gun, Ibaraki-ken, 302-02
Yoshio Onimaru	Head, Concrete Laboratory, The Laboratory of Japan Highway Public Corporation Tadao 1-4-1, Machida-shi, Tokyo-to, 194-01
Fumitoshi Koga	Concrete Laboratory, ditto
Kaoru Sakamoto	ditto
Yoshiaki Kawashima	Head, Pavement Laboratory, ditto
Isao Fukushima	Pavement Laboratory, ditto

OBSERVERS

Tomio Hara	Director General, The Laboratory of Fukuda Doro Co., Ltd. Sunagawara, Yamada, Kurosaki-machi, Nishikanbara-gun, Niigata-ken, 951-11
Ryoji Konno	Emulsion Department, Japan Synthetic Rubber Co., Ltd. Tsukiji 2-11-24, Chuo-ku, Tokyo-to, 104
Maoi Yang	Student from the Republic of China c/o The Laboratory of Nihon Doro Co., Ltd. Tamagawa 2-11-20, Ohta-ku, Tokyo-to, 146
Shoichiro Suzaki	Director of Engineering Department, Nohon Doro Co., Ltd. Shimbashi 1-6-5, Minato-ku, Tokyo-to, 105
Tohru Yoshikane	Director General, The Central Laboratory of Taiyu Kensentsu Co., Ltd. Jubancho 6-12, Nakagawa-ku, Nagaoya-shi, Aichi-ken, 454
Hiroshi Katano	Executive Director, Nisshin Hodo Kenetsu Co., Ltd. Koami-cho 14-1, Nihonbashi, Chuo-ku, Tokyo-to, 103
Kenji Ohta	Head, The 1st Technical Division, Nichireki Kagaku Kogyo Co., Ltd. Kudan-Kita 4-3-29, Choyoda-ku, Tokyo-to, 102
Hiroshi Yamanokuchi	Deputy Director of Construction Department, Nihon Hodo Co., Ltd. Kyobashi 1-19-1, Chuo-ku, Tokyo-to, 104
Takayoshi Mizoguchi	Director of Technical Department, The Laboratory of Taisei Doro Co., Ltd. Ohsaki 264, Urawa-shi, Saitama-ken, 337
Koji Kitamura	Director of Techncial Department, Seiki Tokyu Kogyo Co., Ltd. Shibakoen 2-9-3, Minato-ku, Tokyo-to, 105
Kazuo Shinada	Director General, The Laboratory of Kajima Doro Co., Ltd. Tobitakyu 2-19-1, Chofu-shi, Tokyo-to, 182
Kazuo Amou	Executive Director, Kajima Doro Co., Ltd. Koji-machi 5-3-1, Chiyoda-ku, Tokyo-to, 102
Keinosuke Takayama	Director of Technical Department, Kajima Doro Co., Ltd., ditto
Kenichiro Nomura	Technical Department, The Laboratory of Taisei Doro Co., Ltd. Ohsaki 264, Urawa-shi, Saitama-ken, 337
Kaoru Seto	Director of Technical Department, Ohbayashi Doro Co., Ltd. Shoei Nishiki-cho Bldg., Kanda Nishiki-cho 1-2-1, Chiyoda-ku, Tokyo-to 101
Hitoshi Tanaka	Technical Department, Maeda Doro Co., Ltd. Kamiohsaki 3-14-12, Shinagawa-ku, Tokyo-to, 141

Takeshi Kamaeguchi	Technical Department, Fujita Doro Co., Ltd.
Takeshi Satoh	Technical Department, Nihon Hodo Co., Ltd. Kyobashi 1-19-1, Chuo-ku, Tokyo-to, 104
Makoto Okudaira	Head of Technical Division, Seiki Tokyu Kogyo Co., Ltd. Shibakoen 2-9-3, Minato-ku, Tokyo-to, 105
Akio Nakajima	Director General, The Laboratory of Seiki Tokyu Kogyo Co., Ltd. Seiwa 2081-2, Iwafune-cho, Shimotsuga-gun, Tochigi-ken, 329-44
Toshiyuki Kawano	Head of Technical Development Division, Toa Doro Kogyo Co., Ltd. Roppongi 7-3-7-, Minato-ku, Tokyo-to, 106
Michio Mori	Deputy Director General, The Laboratory of Nihon Doro Co., Ltd. Tamagawa 2-11-20, Ohta-ku, Tokyo-to, 146
Sadao Nagumo	Director General, The Laboratory of Kumagai Doro Co., Ltd. Kokinu 216-1, Yawahara-mura, Tsukuba-gun, Ibaraki-ken, 302-02
Takeshi Fujiwara	Vice-President, Japan Road Contractors Association Shin Tokyo Bldg. 9F, Marunouchi 3-3-1, Chiyoda-ku, Tokyo-to, 100